

AMENDMENTS TO THE CLAIMS

This list of claims will replace all prior claims lists in this application.

List of Claims:

1. (Currently amended) A method of sealing two substrates in a microstructure, comprising the following steps:

depositing a first rim onto a surface of a first substrate, said first rim comprising an upper rim comprising a layer of sealing material that interdiffuses spontaneously with a material of a second substrate and a lower rim comprising an adhesion material that adheres said first substrate to said sealing material;

depositing a second rim onto a surface of at least one protuberance formed on said second substrate facing said first rim, said second rim comprising a layer of said sealing material;

wherein said second rim overlies a surface of at least one protuberance on said second substrate, the at least one protuberance having a plurality of hollows or a meshed structure and adapted to channel the diffusion of said sealing material;

bringing said upper rim and said second rim into contact; and

heating said sealing material to interdiffuse said sealing material and said material of said second substrate, the at least one protuberance channeling the diffusion of said sealing material.

2. (Previously presented) The sealing method according to claim 1, wherein said sealing material and a material of said first substrate comprise materials that diffuse into each other and wherein said lower rim forms a barrier to diffusion.

3. (Previously presented) The sealing method according to claim 1, wherein said sealing material and a material of said first substrate comprise materials that diffuse into each other and wherein said first rim further comprises a layer forming a barrier to diffusion between said lower rim and said upper rim.

4. (Previously presented) The sealing method according to claim 1, wherein said first substrate comprises silicon.

5. (Previously presented) The sealing method according to claim 1, wherein

said second substrate comprises silicon.

6. (Previously presented) The sealing method according to claim 1, wherein said sealing material comprises gold.

7. (Currently amended) The sealing method according to claim 2, wherein said barrier layer comprises tungsten.

8. (Withdrawn) A sealing region between two substrates of a microstructure, wherein said sealing region is made by the method according to claim 1.

9. (Withdrawn) A sealing region between two substrates of a microstructure, comprising:

a lower rim on a first substrate, the lower rim comprising an adhesion material that adheres said first substrate to a sealing material that interdiffuses spontaneously with a material of a second substrate;

a layer of said sealing material on said lower rim; and

a protuberance on said second substrate, said protuberance containing a quantity of sealing material and contacting said layer of sealing material.

10. (Withdrawn) The sealing region according to claim 9, wherein said sealing material and a material of said first substrate diffuse into each other and wherein said lower rim forms a barrier to diffusion.

11. (Withdrawn) The sealing region according to claim 9, wherein said sealing material and a material of said first substrate diffuse into each other and wherein said sealing region further comprises a layer forming a barrier to diffusion between said lower rim and said layer of sealing material.

12. (Withdrawn) The sealing region according to claim 8, wherein said surface of said protuberance comprising a plurality of hollows.

13. (Withdrawn) The sealing region according to claim 8, wherein said surface of said protuberance comprises a meshed structure.

14. (Withdrawn) The sealing region according to claim 8, wherein said first substrate comprises silicon.

15. (Withdrawn) The sealing region according to claim 8, wherein said second substrate comprises silicon.

16. (Withdrawn) The sealing region according to claim 8, wherein said sealing material comprises gold.

17. (Withdrawn) The sealing region according to claim 10, wherein said barrier layer comprises tungsten.

18. (Withdrawn) A microstructure comprising a sealing region according to claim 8.

19. (Previously presented) The sealing method according to claim 3, wherein said barrier comprises tungsten.

20. (Withdrawn) The sealing region according to claim 9, wherein said surface of said protuberance comprises a plurality of hollows.

21. (Withdrawn) The sealing region according to claim 9, wherein said surface of said protuberance comprises a meshed structure.

22. (Withdrawn) The sealing region according to claim 9, wherein said first substrate comprises silicon.

23. (Withdrawn) The sealing region according to claim 9, wherein said second substrate comprises silicon.

24. (Withdrawn) The sealing region according to claim 9, wherein said sealing material comprises gold.

25. (Withdrawn) The sealing region according to claim 11, wherein said barrier comprises tungsten.

26.- 27 (Cancelled)

28. (New) The sealing method according to claim 1 further comprising etching said second substrate using said second rim as an etch mask to form said at least one protuberance.

29. (New) The sealing method according to claim 1, wherein said upper rim is configured to form a reservoir for said sealing material and to facilitate interdiffusing said sealing material and said material of said second substrate.

30. (New) The sealing method according to claim 1, wherein said plurality of hollows or meshed structure is configured to retain a portion of molten sealing material.